53-65-1-3/10

AUTHOR: Pomerantsev, N. M.

TITLE: The Phenomenon of the Spin-Echo and Its Application (Yavleniye
               spinovykh ekho i yego primeneniye)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 1,
               pp. 87 - 110 (USSR)

ABSTRACT: The application of pulse technique in experiments on magnetic
               nuclear resonance lead to the interesting physical phenomenon
               of the so-called "spin-echo", the first report about which was
               received from Hahn (Khan) (Refs 1 and 2). In the experiments
               for the investigation of nuclear magnetic resonance material
               samples are in a strong steady magnetic field which produces
               a nuclear polarization. The resulting vector of nuclear magneti-
               zation occurring here will describe a precession motion around
               the field direction, whenever a force displaces it from its
               equilibrium position. This is achieved in experiments by employ-
               ing a weak radiofrequency field. Resonance occurs if the fre-
               quency of the radiofrequency field coincides with the frequency
               of the Larmor precession of the nuclear spin. The first pulse
               of the pulse sequence acting upon the material sample effects
               the deflection of   vector M, which, after the termination

Card 1/3

The Phenonenon of the Spin-Echo and Its Application   53-65-1-3/10

of this pulse, will describe a free Larmor precession around
the field direction. $dM/dt = \gamma [\vec{MH}]$ holds, γ denoting the
gyromagnetic ratio of the atomic nuclei and H the magnetic field
strength. In the present survey on the problems and the results
obtained by the investigation of the phenomenon of the spin-
-echo the author devotes special attention to the physical
aspect of these matters. Following the discussion of the physi-
cal foundations the author deals with the methods of the obser-
vation of the spin-echo (Carr, Purcell (Karr,Percell),Ref 3).
The equipment serving for the recording of the spin-echo (Ref 6)
is described in detail and is represented in a block scheme.
It consists of pulse generator, control device, modulator,
power amplifier, high-frequency amplifier, limiter, detector,
low-frequency amplifier and oscillograph. The sample is located
in a coil between the poles of a permanent magnet. In a further
block scheme the control device is outlined. Circuit diagrams
are given for the modulator and the power amplifier. In further
sections the author comments on the investigation of the re-
laxation process with the help of the spin-echo, the utiliza-
tion of the spin-echo for the investigation of the magnetic

Card 2/3

The Phenomenon of the Spin-Echo and Its Application   53-65-1-3/10

microstructure of molecules and finally on the application
of the spin-echo for delay lines and storage devices (Refs
33 and 34). The occurrence of the echo signals is dealt with
mathematically. There are 16 figures, 2 tables, and 36 refer-
ences, 4 of which are Soviet.

1. Nuclear spins--Applications   2. Molecular structure--Analysis

Card 3/3

S/141/60/005/02/007/025
E192/E382

AUTHOR: Pomerantsev, N.M.

TITLE: Nonlinear Effects During the Interaction of Nuclear
           Magnetic Moments with an Oscillatory System

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
               1960, Vol 3, Nr 2, pp 226 - 233 (USSR)

ABSTRACT: It has been shown in an earlier paper (Ref 2) that the
           behaviour of an oscillator in the presence of the emf
           produced by nuclear magnetic moments can be described by
           a second-order differential equation and by the equations
           of Bloch. If it is assumed that the characteristic of the
           electron tube employed in the system is described by a
           polynomial of the third degree, the equations can be
           written as:

$$d^2V/dt^2 + \omega^2 V = \varepsilon(1 - 4V^2)dV/dt - 2AdM_x/dt \quad ;$$

$$dM_x/dt + \mu M_x - \gamma H_z M_y = 0 \quad ;$$

$$dM_y/dt + \mu M_y + \gamma H_z M_x - 2BM_z dV/dt = 0 \quad ;$$

$$dM_z/dt + \nu(M_z - M_0) + 2BM_y dV/dt = 0$$

(1) .

Card1/5

$\sqrt{c}$

S/141/60/003/02/007/025
E192/E382

Nonlinear Effects During the Interaction of Nuclear Magnetic Moments with an Oscillatory System

The following notation is adopted in this system: V is the normalized voltage on the resonant circuit of the oscillator (i.e. the ratio of the voltage to its steady-state amplitude); ω is the resonant frequency of the circuit; ε is a parameter depending on the coefficients of the polynomial, describing the characteristic of the tube and the damping coefficient of the tuned circuit; $2A$ and $2B$ are constants depending on the geometry of the coil and the quantity of the sample substance; M_x, M_y and M_z are the components of the vector of nuclear magnetization; M_o is the equilibrium value of the magnetization; μ and ν are the quantities inverse to the relaxation times; T_2 and T_1; γ is the gyro-magnetic ratio for the atomic nuclei and H_z is the longitudinal component of the magnetic field. By introducing the variables defined by Eqs (2) and neglecting the higher-order components, Eqs (1) can be written in the

Card 2/5

S/141/60/003/02/007/025
E192/E382

Nonlinear Effects During the Interaction of Nuclear Magnetic Moments
with an Oscillatory System

simplified form; this is represented by Eqs (3).
The solution of this system is greatly simplified if it
is assumed that the amplitude of the oscillations deviates
comparatively little from its steady-state value ($\varrho = 1 + \varrho'$)
and $M_z \simeq$ const . In this case, the solution of Eqs (3)
is in the form of Eq (4), where the functions u and v
can be determined from Eqs (5). By introducing the notation
of Figure 6, Eqs (5) can be represented as Eqs (7). The
steady-state solution of Eqs (7) can be represented by
Eqs (8). When the quantity Δ in Eqs (7) is a linear
function of time, these can be written as Eqs (10). The
solution of such equations can be carried out numerically.
This was shown by employing an analogue computer at the
Mathematical Centre of the Moscow State University. The
solutions thus obtained are represented in Figures 3 and 4.
Curve 1 in Figure 3 represents the solution without
nonlinear terms, while Curve 2 takes into account the
nonlinearities. From Figure 3 it is seen that a considerable
delay in the appearance of the signals in the oscillator is

Card3/5

S/141/60/003/02/007/025

E192/E382

Nonlinear Effects During the Interaction of Nuclear Magnetic Moments
with an Oscillatory System

observed; this does not appear in the solution of the
Bloch equations. Figure 4 shows that the oscillation
frequency of the system at first changes almost linearly
in accordance with the frequency changes of the Larmor
precession. After reaching the regonance region, the
frequency varies rapidly and finally reaches the steady-
state value. The frequency transient is oscillatory in
character. It is seen, therefore, that a process of
locking-in the oscillator by the precession of the nuclear
magnetic moments is observed. The theory was checked
experimentally. The system employed for the purpose is
shown in the block schematic of Figure 5. This consisted
of: a coil (of the resonant circuit) with the sample 1 ;
the oscillator 2 ; an oscillograph 3 ; a cathode
follower 4 ; a heterodyne wavemeter 5 ; a frequency-
meter 6 ; an oscillograph 7 . The oscillator in the
system was based on the Pound-Knight-Watkins system, which
was provided with an automatic amplitude stabiliser (Ref 8).
The signal from the load of the detector was applied directly
to the input of the oscillograph. The experimental results

Card4/5

KARPOV, V.L.; POMERANTSEV, N.M.; SERGEYEV, N.M.

Nuclear magnetic relaxation in irradiated rubbers. Vysokom.
soed. 5 no.1:100-107 Ja '63.   (MIRA 16:1)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.
          (Rubber, Synthetic—Spectra)
       (Nuclear magnetic resonance and relaxation)
               (Radiation)

DOLININ, Yu.R.; POMERANTSEV, N.M.

Parametric locking of the frequency of an autodyne generator in a nuclear magnetic resonance spectrometer. Izv. vys. ucheb. zav.; radiofiz. 4 no.4:665-670 '61. (MIRA 14:11)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni L.Ya. Karpova.
     (Nuclear magnetic resonance and relaxation--Measurement)

30681

S/141/61/004/004/010/024
E202/E135

24,3400 (1163)

AUTHORS: Dolinin, Yu.R., and Pomerantsev, N.M.

TITLE: Paramagnetic frequency locking of an autodyne
             oscillator used in a nuclear resonance spectrometer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
             vol.4, no.4, 1961, 665-670

TEXT: The authors have designed a particularly sensitive
nuclear resonance spectrometer based on the autodyne oscillator
design, which with a relatively weak field strength of 2600 oe
and without sample rotation is capable of registering strong
absorption signals, e.g. from a 4 mℓ sample of toluene.   The
principle of the spectrometer's design is shown in the block
diagram of Fig.1, where: 1 - external frequency generator working
at twice the frequency of the main autodyne generator, and locking
parametrically the frequency of the latter;   2 - autodyne
generator;   3 - HF amplifier;   4 - LF amplifier;   5 - CRT
oscilloscope registering the spectra and monitoring the field;
6 - cathode follower with differential output for feeding the
field modulating coils;   7 - audio generator supplying the voltage

Card 1/3

30681

Paramagnetic frequency locking of ...   S/141/61/004/004/010/024
E202/E135

to the electronic interrupter.
Detailed discussion of the circuit is given, including all the
values of the components in the RF section of the spectrometer.
There are 4 figures and 7 references: 3 Soviet-bloc, 1 Russian
translation from non-Soviet work, and 3 non-Soviet-bloc. The
English language references read as follows:
Ref.2: F. Bloch, Phys. Rev., Vol.70, 460 (1946).
Ref.4: E.R. Andrew, Nuclear Magnetic Resonance (Yadernyy
    magnitnyy rezonans) 1955, Russian translation IL, M., 1957.
Ref.7: R. Evans, J. Sci. Instr., Vol.37, 353 (1960).

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy
    institut im. L.Ya. Karpova
    (Physicochemical Scientific Research Institute
    imeni L.Ya. Karpov)

SUBMITTED: February 27, 1961

Card 2/3

POMERANTSEV, N.M.; KHRAMCHENKOV, V.A.; SUMIN, L.V.; ZIMIN, A.V.

Nuclear magnetic resonance spectra of irradiated perfluroöctadiene
and perfluorododecadiene. Dokl.AN SSSR 137 no.5:1153-1154 Ap '61.
(MIRA 14:4)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Predstavleno
akademikom V.A.Karginym.
(Octadiene—Spectra)   (Dodecadiene—Spectra)

SHIGORIN, D.N.; POMERANTSEV, N.M.; SUMIN, L.V.

Characteristics of the proton magnetic resonance spectra of the
α and β forms of polypeptide chains. Vysokom.so ed. 3 no.4:560-
561 Ap '61.   (MIRA 14:4)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
   (Peptides)   · (Nuclear magnetic resonance and relaxation)

21979

$5.5400(1273, 1282, 1160)$

AUTHORS: Pomerantsev, N. M., Khramchenkov, V. A., Sumin, L. V.,
              and Zimin, A. V.

TITLE: Nuclear magnetic resonance spectra of irradiated perfluoro
              octadiene and perfluoro dodecadiene

TEXT: For complicated molecules, the interpretation of the infrared
spectrum is rendered difficult because the absorption bands of the
individual functional groups are superimposed. In the nuclear magnetic
resonance (nmr) spectrum, however, the lines of the groups are well
discernible. This is proved by the nmr spectra, taken by the authors, of
the F^{19} nuclei in non-irradiated and irradiated perfluoro octadiene and
perfluoro dodecadiene. Irradiation was conducted at room temperature
with Co^{60} (integral dosis $\sim 10^{22}$ ev.g^{-1}). The apparatus for the recording
of spectra will be described in a separate paper. The CF_3 group of

Card 1/4

21979

Nuclear magnetic resonance spectra ...

trifluoro acetic acid was used as a reference standard for the chemical shift δ of F^{19}. Figs. 1, 2 show the data obtained, δ being calculated from the equation $\delta = 10^5 (H_{stand} - H_{sample})/H_{stand}$, where H_{stand} is the value of the field resonance for the standard, H_{sample} is that for the fluorine of the group investigated. According to data published on fluorine compounds containing F and C only, the absorption bands of F^{19} nuclei of the CF group lie in strong fields, those of the CF_2 group in weak fields, and those of the CF_3 group in even weaker fields. On the basis of these facts, the spectra obtained are interpreted as follows: The intensive band at $\delta = 5.5$ should consist of a series of unresolved lines corresponding to F^{19} nuclei of the CF_2 groups in the molecules $CF_2=CF-(CF_2)_4-CF=CF_2$ and $CF_2=CF-(CF_2)_8-CF=CF_2$. The lines of CF lying in the stronger field were not observed, probably due to their low intensity. The spectra of irradiated compounds differed from those of

Card 2/4

S/020/61/137/005/023/026
B101/B203

Nuclear magnetic resonance spectra ...

non-irradiated compounds by lines in weak fields. They are ascribed to the CF_3 groups, which had also been proven by infrared spectroscopy. Some changes in the bands of CF_2 groups should be due to the formation of branched structures. Their interpretation might be possible in the case of a better resolution. The bands of irradiated samples are wider than those of non-irradiated ones. This is explained by the viscosity of irradiated samples. Measurements at higher temperatures should lead to better resolved spectra. There are 2 figures and 4 non-Soviet-bloc references. The four references to English-language publications read as follows: J. A. Pople, W. G. Schneider, H. J. Bernstein, High-resolution Nuclear Magnetic Resonance, N.Y., 1959; H. S. Gutowsky, C. J. Hoffman, J. Chem. Phys., 12, 1259 (1951); A. Saika, W. P. Slichter, J. Chem. Phys., 22, 26 (1954); N. Muller, P. C. Lauterber, G. F. Svatos, J. Am. Chem. Soc., 79, 1807 (1957).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
                (Physicochemical Institute imeni L. Ya. Karpov)

PRESENTED: November 17, 1960, by V. A. Kargin, Academician
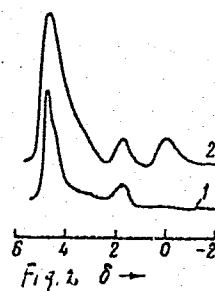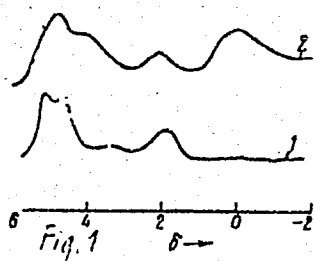
Card 3/4

Nuclear magnetic resonance spectra ...

SUBMITTED: November 10, 1960

Fig. 1. Spectrum of nuclear magnetic resonance of F^{19} nuclei of perfluoro octadiene. Legend: (1) non-irradiated, (2) irradiated.

Fig. 2. Spectrum of nuclear magnetic resonance of F^{19} nuclei of perfluoro dodecadiene. Legend: (1) non-irradiated, (2) irradiated.

Card 4/4

S/032/60/026/008/024/046/XX
B020/B052

AUTHOR: Pomerantsev, N. M.

TITLE: Application of Nuclear Magnetic Resonance for Analytical
               Purposes (Survey)

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 8, pp. 950-956

TEXT: The method of nuclear magnetic resonance (nmr) was developed in the
years after 1945/46, after the electron paramagnetic resonance had been
discovered by Ye. K. Zavoyskiy. At present, nmr is frequently applied in
the investigation of molecular structures. Thus, data are obtained which
would have never been obtained by other methods. The sensitiveness of this
method is not higher than that of other methods, but new fundamental
analysis possibilities of analysis were discovered. The theory of nmr is
described in detail. Fig. 1 shows a block diagram of the most simple nmr
spectrometer, Fig. 2 an nmr signal observed during a rapid change of the
field; Fig. 3 shows the high-resolution spectrum of the protons of ethyl
alcohol. Fig. 4 gives the chemical displacements of nuclear absorption

Card 1/2

PERESLENI, Ye.M.; SHEYNKER, Yu. N.; ZOSIMOVA, N.P.; POMERANTSEV, Yu.I.
      (Moskva)

Tautomerism of some derivatives of heterocyclic compounds.
Report 17. Zhur. fiz. khim. 39 no. 1:92-99 Ja '65
                                    (MIRA 19:1)

POMERANTSEV, O.V., inzh.

Conference on the study of fire prevention techniques in power engineering enterprises and the use of modern fire extinction methods. Energ. i elektrotekh. prom. no.4:73 O-D '65.

(MIRA 19:1)

POMFRANTSEV, O.V.

Conference on the automation of thermal systems of electric
power plants using electronic computers. Energ. i elektrotekh.
prom. no.3:73 Jl-S '65. (MIRA 18:9)

POMERANTSEV, O.V., inzh.

Automatic control of thermal processes in blocks with 200,000
kw. power ratings. Energ. i elektrotekh. prom. no.1:34-38
Ja-Mr'64.
                                                    (MIRA 17:5)

SHTEFAN, V.Ye.; LIBERMAN, A.A.; POMERANTSEV, O.V.

Automation of work processes in the Kharkov No.2 Hydroelectric
Power Station. Energ. i elektrotekh. prom. no.2:3-6 Ap-Je '62.
(MIRA 15:6)
(Kharkov Hydroelectric Power Station)
(Automatic control)

POMERANTSEV, O.V., inzh.

Brief news. Energ. i elektrotekh. prom. no.3:72-73 Jl-S '64.
(MIRA 17:11)

POMERANTSEV, O.V., inzh.

Automation and protection of the thermal power equipment of blocks
with 150-200 thousand kw. ratings. Energ. i elektrotekh. prom. no.2:
74 Ap-Je '64.   (MIRA 17:10)

POMERANTSEV, P.P.

Word about Przheval'skii; on the 125th anniversary of his birth.
Izv.Vses.geog.ob-va 96 no.4:294-305 Jl-Ag '64.

(MIRA 17:10)

PANKEVICH, Arkadiy Petrovich; CHEODAYEV, N.S., red.; POMERANTSEV, P.V.,
red.; SUSHKIN, I.N., red.izd-va; MIKHAYLOVA, V.V., tekhn.red.

[Instruction manual for a course in drawing] Metodicheskoe
rukovodstvo po kursu chercheniia. Moskva, Gos. nauchno-tekhn.
izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1958. 69 p.,
220 l. (in portfolio)   (MIRA 12:2)
                       (Drawing)

POMERANTSEV, SERGEY NIKOLAYEVICH ———————— DECEASED ———————————— 1961/2
c1961

aSEE ILC

METALLURGY

POMERANTSEV, V., inzh.

    Methods of justifying the loading capacity of ships for naviga-
tion in main rivers. Rech.transp. 19 no.1:11-13 Ja '60.
                                      (MIRA 13:5)

        (Inland navigation)

KRUTIKOV, K., inzh.; POMERANTSEV, V., inzh.

Prospects for expanding river transportation in the Perm Economic
Region. Rech. transp. 20 no. 3:9-11 Mr '61.   (MIRA 14:5)
         (Perm Province--Inland water transportation)

L 45130-66   EWT(d)/ESS-2

ACC NR: AP6025659   (A, N)   SOURCE CODE: UR/0413/66/000/013/0113/0114

33
B

INVENTOR: Pomerantsev, V. F.

ORG: none

TITLE: Speed regulator. \0 Class 42, No. 183502

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966,
113-114

TOPIC TAGS: speed regulator, ~~governor~~ MECHANICAL MOTION, INSTRUMENT

ABSTRACT: This Author Certificate introduces a speed regulator which has smaller size,
is more dependable, and has greater accuracy. The device consists of a tachometer
transducer, a floating valve, a servopiston with return movement, and an adjusting
mechanism driven by a servomotor (see Fig. 1). The servopiston has a direct spring
coupling with the floating value and a coaxial coupling with the tachometer. The

UDC: 621-585.18:   :62-531.6

Card   1/2

L 45130-66

ACC NR: AP6025659
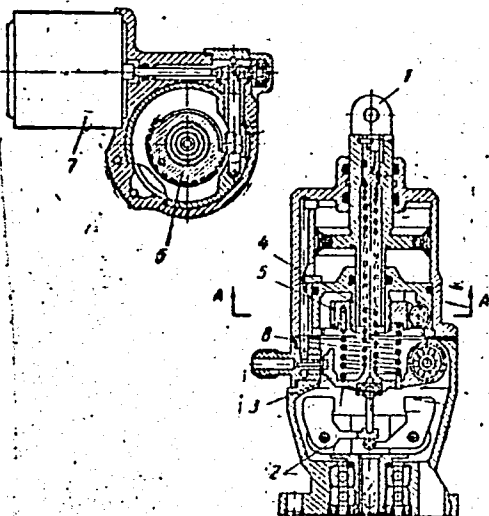
Fig. 1. Speed regulator

1 - Servopiston; 2- tachometer transducer;
3 - floating valve; 4 - return-movement
spring; 5 - toothed nut; 6 - worm gear;
7 - electric servomotor; 8 - tachometer-
transducer spring.

spring is used for the return movement of the servopiston and for the adjustment
of the tachometer. The adjustment mechanism consists of a screw with a toothed nut
with a wide rim which is connected to the servomotor and to the tachometer's spring
by means of a reduction gear. Orig. art. has: 1 figure.   [SA]
SUB CODE: 13/ SUBM DATE: 19May65/
Card 2/2

POMERANTSEV, Vadim Grigor'yevich; SHEYNGOL'D, Yefim Markovich; AFONINA, G.;
    veduchi redaktor; KUDRYAVTSEV, G., veduchi·red.; PATSALYUK, P.,tekhn.red.

[Modernization of machine tools] Modernizatsiia metalorizal'nykh
verstativ. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1957. 62 p.
                                        (MIRA 10:12)
                        (Machine tools)

Artesian waters and their sanitary control. V. G. Pomerantsev and M. G. Pyshkin. *Hig. i Sanit.* (U. S. S. R.) 1940, No. 7-8, 19-26.—The expts. were carried out in Orekhovo-Zuevo. The contamination of the artesian waters could take place as a result of combining with piped water for tech. purposes. Daily sanitary control is absolutely necessary. In the conditions of Orekhovo-Zuevo the most important part of the sanitary tech. control is the daily detn. of pH, of chlorides and of hardness which is due to carbonates. A complete sanitary-chem. analysis of artesian, ground and river waters should be carried out 4 times per yr. A parallel bacteriol. control method should be carried out. — S. Machelson

POMERANTSEV, V.M., sostavitel' sbornika; BANNIKOV, N.A., redaktor; FEDOTOVA,
A.F., tekhnicheskiy redaktor

[It's a question of organizers; the work of collective farm director]
Delo v organizatorakh; iz praktiki rukovodstva kolkhozami. Moskva.
Gos. izd-vo selkhoz. lit-ry, 1956. 164 p.   (MLRA 9:12)
        (Collective farms)

RUMYANTSEV, O.V.; SO... ...; MUKHLENOV, I.P.; POMERANTSEV, V.M.

Optimum design of reactors with internal heating for the synthesis of ammonia and methanol. Khim. prom. 40 no.8: 605-610 Ag '64.   (MIRA 18:4)

1. Moskovskiy institut khimicheskogo mashinostroyeniya (for Rumyantsev, Sokolinskiy). 2. Leningradskiy ordena Trudovogo Krasnogo Znameni tekhnologicheskiy institut im. Lensoveta (for Mukhlenov, Pomerantsev).

TRABER, D.G.; POMERANTSEV, V.M.; MUKHLENOV, I.P.; SARKITS, V.B.

Heat transfer from a fluid-bed catalyst to the surface of heat
exchange. Zhur.prikl.khim. 35 no.11:2386-2393 N '62. (MIRA 15:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
   (Heat exchangers)   (Fluidization)   (Heat—Transmission)

POMERANTSEV, V.M.; MUKHLENOV, I.P.; TRABER, D.G.

Synthesis of methanol in a fluidized bed of catalyst. Zhur.
prikl. khim. 36 no.4:754-764 Ap '63.   (MIRA 16:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
            (Methanol)   (Fluidization)

POMERANTSEV, V.M.; BANNIKOV, N.A., red.; LAPIDUS, M.A., red.;
GUREVICH, M.M., tekhn. red.

[How we improve the economy of our collective farms]
Kak my podnimaem ekonomiku nashikh kolkhozov. 2. izd.,
perer. i dop. Moskva, Sel'khozgiz, 1957. 203 p.
(Kolkhoznaia ekonomicheskaia biblioteka, no.6)
(MIRA 16:11)
(Collective farms--Management)

POMERANTSEV, Vladimir Mikhaylovich; BERGAUZ, R.I., redaktor; GUReVICH, M.M., tekhnicheskiy redaktor

[Collective farm chairman] Predsedatel'. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 108 p.   (MIRA 10:10)
          (Collective farms)

24000
S/080/61/034/006/001/020
D247/D305

Ϛ ᴵᴵᵀᴵᴰ   1205

AUTHORS: Mukhlenov, I.P., Traber, D.G., Rumyanteseva, Ye.S.,
and Pomerantsev, V.M.

TITLE: Hydrodynamics of a fluidized catalyst bed under high
pressure

PERIODICAL: Zhurnal prikladnoz khimii, v. 34, no. 6, 1961,
1181 - 1185

TEXT: With a continuous expansion of the chemical industry and in-
creased demands for natural and synthetic gases, it has been found
necessary to study more closely conversions and syntheses, based
on monoxide, carried out in a fluidized bed, and to confirm the
existing hydrodynamic equations for processes conducted under
pressures exceeding 70 atm. in order to obtain data for more effi-
cient construction of plants. The investigations were carried out   V
with a gas mixture normally used in methanol synthesis under
pressures of 1 - 230 atm. temperature 15-20°C using spherical gra-

Card 1/4

24000
S/080/61/034/006/001/020
D247/D305

Hydrodynamics of a ...

nules of catalyst of variable particle size, 0.75 - 4.5 mm. The
experiments considered of measuring, under different conditions,
the hydraulic resistance of the fluidized bed, $\triangle p$, determining
the critical velocity of gas corresponding to the transition of the
solid from stationary to fluidized state, apparent gas velocity
W_{fv} being calculated instead of real W_f, and determining the spe-
cific height of the fluidized bed H_{sp} in terms of a ratio of
heights of bed in fluidized, H, and stationary, H_o, states. Under
high pressures $\triangle p$ has been found to exceed, in all cases, the
ratio of the weight of the contact mass to the cross sectional area
of the apparatus by 20 - 35 % and the final equation for $\triangle p$ has
been established as follows:

$$\triangle p = cH_o(\gamma_T - \gamma_\Gamma)(1 - \varepsilon_o)$$

$(\gamma_T = \gamma_S$ and $\gamma_\Gamma = \gamma_G)$ where γ_S and γ_G - density of solid and gase-
ous phases; ε and ε_o - porosity of fluidized and stationary beds;

Card 2/4

24000
S/080/61/034/006/004/020
D247/D305

Hydrodynamics of a ...

and c - the coefficient of resistance of the fluidized bed. For pressures of 50 - 230 atm the coefficient c showed a slight increase corresponding to 1.2 - 1.35 depending upon the particle size of the solid. The critical velocity of gas has been found to decrease with the increasing pressure, the effect being more pronounced for larger particles (d = 3.5 mm). The experimental results were worked out according to A.I. Rychkov, and N.A. Shakhova (Ref. 5: I.F.Zh. II, 9, 92, 1957) and who used equations (Ref. 6: O.M. Todes, and A.K. Bondareva, Khim. nauka i prom. II, 2, 223, 1957) [Abstractor's note: Equations not given] and for lower pressures showed good agreement with the latter. For higher pressures 50 - 230 ats, Pomerantsev submitted the following equation

$$Re_e = 1.3 \ Ar_e^{0.5},$$

where Re_e - Reynolds number and

Card 3/4

Hydrodynamics of a ...

$$Re_e = \frac{w_B \cdot d_e}{\nu}, \qquad Ar_e = (1 - \varepsilon_0)\frac{gd_e^3}{\nu^2} \frac{\gamma_B - \gamma_g}{\gamma_g}$$

– Archimedes number and d_e – equivalent channel diameter (m) determined by Ryzhov's method. ν – kinetic viscosity coefficient (m^2/sec), g – acceleration due to gravity. This equation is represented graphically. The experiments also established that intensive working of the contact mass is achieved for gas velocities corresponding to $H_{sp} = 1.6 - 2.0$ as under such conditions the solid mass is subjected to high turbulence while still maintaining a sufficiently high concentration of catalyst in the working space. There are 5 figures, 1 table and 6 Soviet-bloc references.

SUBMITTED: November 29, 1960

Card 4/4

YAKOVLEV, P.A., SOLOV'YEV, I.V., DENISOVICH, P.A., POMERANTSEV, V.N.

KORF, Z.G.

Loading and unloading equipment in the river ports of the USSR.

Report submitted to the Conf. on the Application of Science and Technology
for the Benefit of the Less Developed Areas.
Geneva, Switzerland   4-20 February 1963

CHERTKOV, K.A.; POMERANTSEV, V.N.

Improve inland water transportation in the Astrakhan Economic Region.
Rech.transp. 18 no.3:8-10 Mr ' 59.   (MIRA 12:4)
        (Astrakhan Province--Inland water transportation)

MIRONOV, Viktor Petrovich, kand.tekhn.nauk; BARAKIN, A.P., retsenzent;
POMERANTSEV, V.N., red.; MAKHUSHINA, A.N., red.izd-va;
POKHLEBKINA, M.I., tekhn.red.

[Ways of increasing the transportation of freight by inland
waterways] Puti uvelicheniia perevozok gruzov rechnym
transportom. Moskva, Izd-vo "Rechnoi transport," 1960.
90 p.   (MIRA 14:3)
          (Inland water transportation)

POMERANTSEV, V.N., inzh.

Effect of loading capacity and movement pattern of ships and rail-
road cars on operations at transshipment ports. Rech.transp. 18
no.6:10-13 Je '59.   (MIRA 12:9)
            (Harbors) (Loading and unloading)

POMERANTSEV, V.N.

Inland Navigation

Some questions of organization of transport on reservoirs. Rech.Transp. 12 No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 1933, Uncl.

POMERANTSEV, V. P.

0240. **Treatment of circulatory insufficiency with erysimin.** V. P. Pomerantsev. *Ter. Arkh.,* 1955, **27,** 24—29. *Referat. Zh. Biol.,* 1956, Abstr. No. 63771.—60 patients with varying degrees of circulatory deficiency were injected i.v. with 0·5—2·5 ml. of 1 : 9000 erysimin in glucose soln. once or twice daily for 34—60 days. On the 2nd or 3rd day of treatment there was usually an improvement in the general condition, slowing of the pulse, increased diuresis, and a reduction or cessation of breathlessness. The e.c.g. showed changes of the terminal point of the ventricular complex. Erysimin is less effective than strophanthin, but on account of lesser toxicity, absence of cumulative effects, and wide range of action it is indicated in treatment of circulatory deficiency. (Russian)   T. R. Parsons.

V.

Pomerantsev, V.P.

USSR/Pharmacology and Toxicology - Cardiovascular Agents.

Abs Jour   : Ref Zhur - Biol., No 2, 1959, 9178

Author   : Pomerantsev, V.P.

Inst   : Crimean Medical Institute

Title   : Cymarin in the Treatment of Circulatory Insufficiency

Orig Pub   : Tr. Krymsk. med. in-ta, 1957, 18, 251-259

Abstract   : Intravenous injections of Cymarin were applied in the
               case of 63 patients with insufficiency of blood circu-
               lation. An improvement occurred in 45 patients. Best
               results were obtained in patients with mitral heart
               failure, hypertension and cardiosclerosis. Side effects
               were noted in $\frac{1}{4}$ of the patients. The strength of action
               of Cymarin is less toxic and exerts a marked diuretic
               action.

- 10 -

Card 1/1

POMERAHTSEV, V.P.

Effect of mud bath therapy on hyaluronidase activity of blood
serum. Vop. kur., fizioter. i lech. fiz. kul't. 26 no.5:404-407
S-O '61.   (MIRA 14:11)

1. Iz fakul'totskoy terapevticheskoy kliniki (zav. - dotsent V.M.
Kakhanovich) Krymskogo meditsinskogo instituta imeni I.V.Stalina
(dir. - dotsent S.I.Georgiyevskiy).
         (BATHS, MOOR AND MUD)   (SERUM)

POMERANTSEV, V.P., dotsent; NGUYEN MAN' LYK; NOAN TONG

Some clinical characteristics of gastric and duodenal peptic ulcer in the Democratic Republic of Vietnam. Sov.med. 25 no.1:143-145 Ja '62.

(MIRA 15:4)

1. Iz kafedry gospital'noy terapii (ispolnyayushchiy obyazannosti zaveduyushchego - dotsent V.P.Pomerantsev) Krymskogo meditsinskogo instituta (dir. - dotsent S.I.Georgiyevskiy) i gospitalya V'yetnamo-sovetskoy druzhby (dir. - doktor Ny Te Bao) v Khanoye.

(VIETNAM, NORTH--PEPTIC ULCER)

POMERANTSEV, V.P., dotsent (Simferopol')

Characteristics of a painless course of atherosclerotic
cardiosclerosis.   Vrach. delo   no.3:125-127 Mr   '64.   (MIRA 17:4)

1. Kafedra gospital'noy terapii (ispolnyayushchiy obyazannosti
zaveduyushchego - dotsent V.P.Pomerantsev) pediatricheskogo
fakul'teta Krymskogo meditsinskogo instituta.

POMERANTSEV, V.V., kand. tekhn. nauk

Isometric scale-protractor. Izv. vys. ucheb. zav.; gor. zhur.
no.5:39-46 '61.
                                                    (MIRA 16:7)

1. Nauchno-issledovatel'skiy ekonomicheskiy institut Goseko-
nomsoveta SSSR. Rekomendovana kafedroy marksheyderskogo dela
Sverdlovskogo gornogo instituta.
                    (Isometric projection)
                    (Mine surveying)

GALKIN, B.I.; BIRYUKOV, V.I.; KREYTER, V.M.; KULICHIKHIN, S.N.;
ORLOVA, Ye.V.; POMERANTSEV, V.V.; RUSETSKAYA, G.G.;
YARMOLOVICH. N.V.; MAKEYEV, V.I., red. izd-va; BYKOVA,
V.V., tekhn. red.

[Prospecting for stockwork deposits of nonferrous and rare
metal ores] Razvedka shtokverkovykh mestorozhdenii tsvetnykh i
redkikh metallov. [By] B.I.Galkin i dr. Moskva, Gosgeoltekh-
izdat, 1962. 233 p.   (MIRA 16:6)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mine-
ral'nogo syr'ya.
                        (Prospecting)

POMERANTSEV V. V.

KOCHNEV, Fedor Petrovich, prof., doktor tekhn. nauk; MAKSIMOVICH, Boris Mikhaylovich; POMERANTSEV, Vladimir Vladimirovich; TIKHONOV, Konstantin Kuz'mich; CHERNOMORDIK, Georgiy Il'ich; DLUGACH, B.A., kand. tekhn. nauk, red.; PRIGOROVSKIY, B.F., inzh., red.; KHITROV, P.A., tekhn. red.

[Traffic management in railroad transportation] Organizatsiia dvizheniia na zheleznodorozhnom transporte. Pod obshchei red. F.P. Kocheneva. Moskva, Gos. transp. zhel-dor. izd-vo, 1958. 491 p.
(MIRA 11:10)

(Railroads--Traffic)

POMERANTSEV, V. V.

714. EXPERIENCE WITH COMBINED STEAM GENERATION AND CHEMICAL UTILIZATION
OF WOOD WASTE. Pomerantsov, V.V., Birkina, K.D., Liverovskii, A.A. and
Kerchunov, U.I. (Rep. 251 E/24 to Sest. E, 5th Wld Pwr Conf., Vienna, 1956,
Prepr., 17pp.). The operating results obtained with the first industrial unit
for combined steam generation and chemical utilization of wood wastes show the
possibilities of the application of this method in industry. The installation
of the furnace-gas producer unit for combined operation while slightly
complicating the boiler plant considerably increased its efficiency. The
extraction of by-products from the fuel before burning increases the degree of
fuel utilization. The furnace-gas producer unit may be effectively used in
small and medium capacity boiler plants burning wood waste due to simplicity of
design, reliability of operation, high overload capability and easy
regulation. Due to the fact that a great number of power plants operate on
peat, the problem of utilization of peat for producing by-products is of great
importance. At present the layer cascade dryer for peat is industrially
tested; some rapid combustion chambers for peat burning are installed. This
permits the construction of the first industrial plant for combined utilization
of peat. The extension of the combined utilization of peat will help to
solve the problem of supplying the industrial centres with gas. At the same
time wide experimental and research work is needed for the investigation of
methods for industrial extraction of valuable by-products from peat tars.
(L).

POMERANTSEV, V.V., kandidat tekhnicheskikh nauk.

Safety of pit edges. Gor.zhur. no.12:56-57 D '56. (MLRA 10:1)

(Strip mining) (Mining engineering)

MITROV, Vyacheslav Vladimirovich; POMERANTSEV, V.V., prof., doktor
tekhn. nauk, retsenzent; ~~MOCHAN, S.I.,~~ kand. tekhn. nauk,
red.; VASIL'YEVA, V.P., red.izd-va; BARDINA, A.A., tekhn.
red.; PETERSON, M.M., tekhn. red.

[Heat exchange in the furnaces of steam boilers] Teploobmen
v topkakh parovykh kotlov. Moskva, Mashgiz, 1963. 179 p.
(MIRA 16:8)

(Steam boilers--Firing)

POMERANTSEV, Vladimir Vladimirovich, kand. tekhn.nauk; KONIKOV, L.A.,
red.; GERASIMOVA, Ye.S., tekhn. red.

[Practical method of correlation analysis; using the examples
of analyses of capital expenditures] Prakticheskaia metodika
korreliatsionnogo analiza; na primerakh issledovanii kapital'-
nykh zatrat. Moskva, Ekonomizdat, 1963. 24 p.   (MIRA 16:6)
     (Correlation (Statistics)) (Capital investments)

Pomerantsev, V.V.

2782. **WASTE WOOD AS A SOURCE OF ENERGY AND CHEMICALS.** Birnkov, I.F., Liverovskii, A.A. and Pomerantsev, V.V. (Gidroliz. lesokhim. Prom. (Hydrolyt. Forest-Chem. Ind., U.S.S.R.), 1956, vol. 9, (1), 6-10; abstr. in Chem. Abstr., 1956, vol. 50, 8169). A unit is described in which steam, fuel gas, two kinds of wood pitch, and potassium acetate are economically produced. It consists of a continuous chip feeder, drying, heating, and combustion chambers, pitch separator and scrubber, salt scrubber, and necessary mechanical and instrumental accessories. Chips moving down a vertical shaft are dried by combustion gases from the burning zone, and are then subjected to thermal decomposition. The products of the latter, consisting of potassium acetate, formic acid, phenols, and several minor not identified compounds are separated continuously. Operational conditions are described, and the analyses of the decomposition products are tabulated.

C.A.

3(5)   PHASE I BOOK EXPLOITATION   SOV/1714

Pomerantsev, Vladimir Vladimirovich, Candidate of Technical Sciences

Elementy predvaritel'nykh promyshlennykh otsenok rudnykh mestorozhdeniy
    tsvetnykh metallov. (Principles of Preliminary Economic Evaluation
    of Nonferrous Ore Deposits) Moscow, Ugletekhizdat, 1957. 56 p.
    4,000 copies printed.

Resp. Ed.: V.M. Kreyter; Tech. Ed.: A.A. Nadeinskaya

PURPOSE: This booklet is written primarily for mining exploration
    geologists.

COVERAGE: The author states that the industrial evaluation of mineral
    deposits is of great significance for prospecting geologists and
    for research and planning workers. He offers a number of formulae,
    graphs and monograms to facilitate the computation of the economic
    factors when estimating deposits. The brochure was written at the

Card 1/3

Principles of Preliminary (Cont.)   SOV/1714

AVAILABLE: Library of Congress (TN271.N6P6)   MM/lsb
                                                 6-8-59

Card 3/3

SOV-127-58-3-2/24

AUTHORS: Ivanov, N.D., Mining Engineer; Pomerantsev, V.V., Candidate
of Technical Sciences

TITLE: Discussion of the article by K.L. Pozharnitskiy (Obsuzhdeniye
stat'i K.L. Pozharnitskogo): Principles for Evaluating Mine-
ral Deposits and Mines (Osnovy otsenki mestorozhdeniy polez-
nykh iskopayemykh i rudnikov)

PERIODICAL: Gornyy zhurnal, 1958, Nr 3, pp 5-11 (USSR)

ABSTRACT: The above mentioned article was published in Nr 9 (1957) of
this periodical. This article is the continuation of the
discussion on the subject by two different authors. The
first author proposes some bases for the evaluation of mine-
ral deposits. The second, criticizing some of the statements
of K.L. Pozharnitskiy finds that further discussion is ne-
cessary to solve this question. There are 5 references,
2 of which are Soviet and 3 English.

ASSOCIATION: (VIMS)

             1. Mineral deposits--Effectiveness

Card 1/1

POMERANTSEV, V.V., doktor tekhn. nauk, prof.; YEKIMOV, G.K., inzh.

Cascade trough-type fuel hoses. Energomashinostroenie
9 no.3:23-25 Mr'63.   (MIRA 17:5)

POMERANTSEV, V.V., kand.tekhn.nauk

Curves of metal distribution in the subsurface. Izv. vys. ucheb.
zav.; gor. zhur. no.10:47-49 '60.   (MIRA 13:11)

1. NIEI Gosekonomsoveta. Rekomendovana kafedroy marksheyderskogo
dela Sverdlovskogo gornogo instituta imeni V.V. Vakhrusheva.
            (Ore deposits)   (Prospecting)

POMERANTSEV, Vladimir Vladimirovich, kand. tekhn. nauk; BYKHOVSKAYA,
S.N., red. izd-va; IL'INSKAYA, G.M., tekhn. red.; LOMILINA, L.N.,
tekhn. red.

[Estimation of ferrous and nonferrous metal ore deposits] Otsenka
rudnykh mestorozhdenii tsvetnykh i chernykh metallov. Moskva, Gos.
nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1961. 199 p.
(MIRA 14:12)

(Ores--Sampling and estimation)

21

The oxygen problem (in fuel gasification). N. I. Sazonov, V. V. Pomerantzev and S. N. Snirkin. *Khimstrol* 6, 505-73(1934).—German installations for gasification of brown coal with steam, with O_2 at atm. pressure and under pressure are discussed with a view to utilizing soft-coal deposits in the vicinity of Moscow.   C. B.

A10-5L6   METALLURGICAL LITERATURE CLASSIFICATION

Heat and gas calculations underlying the project of underground gasification (of coal). V. V. Pomerantsev, N. I. Smaonov and S. N. Subrkin. *Podzemnaya Gaz-Ukhaiva Uglei* 1935, No. 1, 9-15.— A discussion of gas

8 5-9% H_2 and approx. 0.2% CH_4. It had a heat value of about 1000 Cals.   S. L. Madorsky

ATA-SLA   METALLURGICAL LITERATURE CLASSIFICATION

The utilization of fuel for the production of energy and of chemicals. I. I. Pakev and V. V. Pomerantsev. *Nauch.-Informatsionnyǐ Byull. Leningrad. Politekh. Inst.* 1941, No. 1, 28-31; *Khim. Referat. Zhur.* 4, No. 9, 115 (1941).—A combination app. including the Pomerantsev generator developed for wood fuel is described.
W. R. Hena

POMERANTSEV, V. V.   IA 1/4-14

USSR/Engineering   Jan/Feb 48
  Pyrometer
  Thermocouples

"Compensating Pyrometer With an Adjustable
Thermocouple," B. D. Katsnel'son, Cand Tech Sci,
and V. V. Pomerantsev, Cen Sci Res Turboboiler
Inst imeni I. I. Polzunov, 3 pp

"Kotloturbostroye" No 1

Discusses construction principles of subject
pyrometer. Tests showed this instrument capable
of measurements with high precision. It should be
useful in a wide field of technology.

                                     1/49T40

New Boiler Installation with Rapid Burners of the TsKTI System of V. V. Pomerantsev. (In Russian.) V. V. Pomerantsev and B. B. Sternin. *Kotloturbostroenie* (Boiler and Turbine Manufacture), Jan.-Feb. 1949, p. 13-14.

Describes and diagrams the above, particularly adaptable for burning of wood.

POMERANTSEV, V. V.

USSR/Chemistry - Coke   May 51

"Problem of Investigating the Reduction of Carbon
Dioxide With Cokes From Natural Carbonaceous Ma-
terials," V. N. Yershov, V. V. Pomerantsev, Lenin-
grad Polytech Inst

"Zhur Prik Khim" Vol XXIV, No 5, pp 520-526

Worked out method permitting detn of kinetic char-
acteristics of reaction $C + CO_2 = 2CO$ for different
carbons at temps $< 950°C$, recommended for detn of
reaction capabilities of cokes from natural coals
in industrial processes. Proposes formulas for

183T39

USSR/Chemistry - Coke (Contd)   May 51

calcn of (1) reaction rate for temps 900-2,000°K
and (2) total (apparent) reaction rate. Finds
limits for values of activation energy. Character-
izes number of grades of coke from USSR coals and
other carbonaceous materials (shale coke, peat coke).
Gives data on electrode carbon.

183T39

183T39

SHERSHNEV, A.A., laureat Stalinskoy premii, kandidat tekhnicheskikh nauk;
    POMERANTSEV, V.V., kandidat tekhnicheskikh nauk, retsenzent; BARSHTEYN,
    T.K., kandidat tekhnicheskikh nauk, redaktor.

[Pneumatic furnaces for low-capacity boilers] Pnevmaticheskie topki
TsKTI sistemy Shershneva dlia kotlov maloi moshchnosti. Moskva, Gos.
nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 101 p.
                                                    (MLRA 7:6)

    (Furnaces)

POMERANTSEV, V. V. , KATSNEL'SON, B. D. and SHAGALOVA, S. L.   (Masters of Science)

"Physical and Chemical Laws of the Process of Combustion of Natural Fuel,"
paper presented at the 5th World Power Conference, Vienna, 1956

In Branch #5

POMERANTSEV, V. V., SYRKINA, K. D., LIVEROVSKIY, A. A.   and   KORCHUNOV, Yu.N.

    "Experience With Combimed Steam Generation and Chemical Utilization of Wood Wastes,"
paper presented at the 5th World Power Conference, Vienna, 1956

In Branch #5

BURAKOV, I.F.; LIVEROVSKIY, A.A., dotsent; POMERANTSEV, V.V.

Utilization of wood wastes for power and chemicals. Gidroliz. i lesokhim.prom.9 no.1:8-10   '56.   (MLRA 9:6)

1.Direktor zaveda "Vakhtan" (for Burakov).2.Lesotekhnicheskaya Akademiya imeni S.M.Kirova (for Liverovskiy).3.Starshiy nauchnyy sotrudnik TSentral'nogo nauchno-issledovatel'skogo kotloturbinnogo instituta imeni I.I.Polzunova (for Pomerantsev).
                        (Wood waste)

POMERANTSEV, V. V., Doc Tech Sci -- (diss) "Problems of the Inten-
sification of Combustion Processes (Accelerated Combustion of Fuels)."
Len, 1957. 34 pp with diagrams (Min of Higher Education USSR, Len
Polytechnic Inst im M. I. Kalinin), 100 copies (KL, 51-57, 92)

POMERANTSEV, V. V., Shagalova, S. L., BERNSHTYEN, R. S.,

"On the Mechanism of Resistance and Heat Loss in Clusters of Pipes," p 251, Aerodynamic and Heat Transfer Problems in Boiler and Furnace Processes; A Collection of Articles, Moscow, Gosenergoizdat, Moscow, 1958. 329 p.

Purpose: The book is intended for engineers and combustion specialists concerned with the design and operation of heating equipment and it is also for scientific workers and students of vtuzes.

"Generalized Calculation Method for Aerodynamic Resistance of Filled Cross Sections, Ibid. p. 267.

/0. 2000

68271

SOV/81-59-10-35116

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 10, p 254 (USSR)

AUTHORS: Bernshteyn, R.S., Pomerantsev, V.V., Shagalova, S.L.

TITLE: The Problem of the Mechanism of Resistance and Heat Emission in Pipe Bundles

PERIODICAL: V sb.: Vopr. aerodinamiki i teploperedachi v kotel'no-topochn. protses-
sakh. Moscow - Leningrad, Gosenergoizdat, 1958, pp 251-267

ABSTRACT: The distribution of the pressures and the coefficients of heat emission over
the surface of porous pipes of 28 mm in diameter with air flowing around
them in the case of artificial moistening of the pipe material have been in-
vestigated. The experiments were carried out in an aerodynamic pipe at sta-
tionary heat and hydrodynamic conditions with three pipe bundles arranged in
the corridor type with the ratio of the steps $S_1/d = S_2/d = 1.13$; $S_1/d = 1.13$
and $S_2/d = 2.26$; $S_1/d = 2.26$ and $S_2/d = 1.13$ and also with two pipe bundles
arranged in the chessboard order with the ratio of the steps $S_1/d = S_2/d =
= 1.2$; $S_1/d = 2.26$ and $S_2/d = 1.13$ within the range of the Re criterion
$100 - 50,000$. Based on the found fields of pressures and coefficients of
heat emission on the surface of the pipes it has been shown that between the

Card 1/2   pipes of one and the same row a jet flow takes place; in the free section

68271

SOV/81-59-10-35116

The Problem of the Mechanism of Resistance and Heat Emission in Pipe Bundles

between two adjacent rows of the bundle the character of the flow is similar to the character of a jet outflowing into an infinite filled space. It has also been established that a considerable effect on the distribution of the coefficients of heat emission on the circumference of the pipes is exercised by the change in the step of the bundle S_1/d. It has been noted that the first row shows the principal turbulizing action on the gas flow.

R. Artym

Card 2/2

SOV/81-59-8-27676

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 8, p 306 (USSR)

AUTHORS: Bernshteyn, R.S., Pomerantsev, V.V., Shagalova, S.L.

TITLE: A Generalized Method for Calculating the Aerodynamic Resistance of Constrained Cross Sections

PERIODICAL: V sb.: Vopr. aerodinamiki i teploperedachi v kotel'no-topochn. protsessakh. Moscow-Leningrad, Gosenergoizdat, 1958, pp 267 - 289

ABSTRACT: Equations have been cited for calculating the hydraulic resistance for pipe bundles in the corridor and chessbord pattern arrangement of the pipes, as well as for the layer of lump- and ball-shaped particles, which are applicable to technical calculations.

V. Gertsovskiy

Card 1/1

AUTHOR: Pomerantsev, V.V., Doctor of Technical Science
           Shagalova, S.L.,   Candidate of Technical Science
           Aref'yev, K.M.,   Engineer

TITLE: An Approximate Method of Calculating the Combustion
           of a Pulverised Fuel Flame (Priblizhennaya metodika
           rascheta vygoraniya pyleugol'nogo fakela)

PERIODICAL: Teploenergetika 1958, Nr 11, pp 33-41 (USSR)

ABSTRACT: Previous work has established that the volatiles and
           coke burn simultaneously in the early stages of
           combustion of natural fuel. In fuel pulverised to
           100 microns, the quantity of coke burned during the
           time of simultaneous burning of volatiles and coke
           is about 65 - 75%. As will be seen from Fig.1, the
           remaining coke burns very slowly and as the
           combustion time of the volatiles is so much less,
           the total burning time of the fuel is mainly
           governed by burning of the coke. For the purposes
           of mathematical analysis the simplifying assumptions
           are made that the pulverised fuel flame flows only
           forward and is of uniform section; also that the
Card 1/7   coke is ashless and the velocity and temperature

An Approximate Method of Calculating the Combustion of a
      Pulverised Fuel Flame

SOV/96-58-11-6/21

of the fuel particles are the same as the mean
velocity and temperature of the gas. Tests show
that these assumptions are valid for particles of
up to 300 microns. The fundamentals of the
calculation are explained in previously published
articles and formulae are given for the combustion
time of a particle of given size. On the basis of
the equations that are derived, the condition of
the flame at any given instant of time after a fuel
particle enters the furnace is considered.
Calculations are made of the quantity of fuel
burning in a given time, the oxygen consumption,
the oxygen concentration in the torch and the fuel
particle size distribution. Finally a general
solution is obtained from which are derived formulae
for calculating the combustion of fuel dust in the
diffusion and kinetic regions. For convenience of
calculation, nomograms are constructed for equations
13, 21 and 22; these are given in Fig.4. These
nomograms may be used to determine the combustion

Card 2/7

SOV/96-58-11-6/21

An Approximate Method of Calculating the Combustion of a
    Pulverised Fuel Flame

time of the flame provided that the elementary and
fractional composition of the coal particles, the
calorific value of the fuel, the kinetic constants
of the coke, the amount of mechanically-incomplete
combustion, the excess-air factor and the mean
temperature in the furnace chamber are given.
The nomograms can also serve to determine the amount
of mechanically-incomplete combustion after the
torch has burned for a given time and to indicate
the best furnace conditions. They are likewise
useful in comparing operation of various furnace
arrangements and to solve a number of other problems.
However, sufficient data is not available on the
reaction characteristics of natural fuel. Therefore,
the nomograms were first used to determine the
combustion constants from data obtained during heat
balance tests on industrial furnaces. The mean flame
temperature enters into the calculation and the

Card 3/7   determination of this temperature is next considered.

SOV/96-58-11-6/21

An Approximate Method of Calculating the Combustion of a
      Pulverised Fuel Flame

An empirical formula for the temperature change over
the length of the flame is given. The position of
maximum temperature under various conditions is
discussed. Several methods have been proposed to
determine the mean temperature but they are not
sufficiently in accord with combustion conditions.
An expression is given for the determination of the
mean temperature. By successive numerical integration
of one side of this expression with subsequent
determination of the mean temperature, graphs were
constructed for the mean temperature of the flame.
These are given in Fig.5. Practical test data are
then analysed. The method of calculation described
above was used to work out test results on a
number of industrial furnaces in order to determine
the combustion-rate constants for cokes of natural
fuels. It was assumed that the mean particle
velocity is the same as the gas velocity and that
particles do not re-circulate. Forty series of
Card 4/7   industrial tests, totalling about 600 sets of

SOV/96-58-11-6/21

An Approximate Method of Calculating the Combustion of a
    Pulverised Fuel Flame

results of tests on different types of furnace, were
analysed. The fuels involved range from anthracite
to lignite. The test data adequately covers the
range of conditions encountered in industrial
furnaces. The results are plotted in Fig.6. as the
relationship between the logarithm of the apparent
reaction-speed constant and the reciprocal of the
absolute temperature. The values of the apparent
kinetic combustion constants for any given fuel
are grouped round a straight line with a maximum
scatter of + 60% from the mean. Individual test
results in which the burners were working irregularly
are excluded. Provided combustion is normal, the
values of the apparent constants for any given fuel
are practically independent of burner construction
and arrangement because in modern furnaces with long
flames the initial mixing conditions influence only
Card 5/7   the stability of ignition. Because it was assumed

SOV/96-58-11-6/21

An Approximate Method of Calculating the Combustion of a
        Pulverised Fuel Flame

that the flame flows only forward the constants
determined are not universally applicable but they
can be used for combustion calculations on furnace
chambers of the type here analysed. Further test
data must be worked out for various industrial
furnaces and rigs so that the influence of
aerodynamic factors can be assessed and the values
of more generally applicable constants determined.
Comparison between the test data and laboratory
data given in Fig.7. shows that in both cases the
values of the constants are of the same order.
Therefore, very extensive data obtained with
different furnaces and different kinds of fuel have
confirmed the general validity of the given method
of analysing combustion. The accompanying methods
of calculation, including the nomogram, can be
used for quantitative evaluation of the behaviour
of the combustion process under particular

Card 6/7   conditions in a given furnace. They can be used

SOV/96-58-11-6/21

An Approximate Method of Calculating the Combustion of a
    Pulverised Fuel Flame

to compare the operation of furnaces and to determine
the influence of various factors on the rate of fuel
consumption and also to compare different methods
of burning fuel. There are 7 figures, 1 table and
9 Soviet references.

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut
    (Central Boiler Turbine Institute)

Card 7/7

S/196/61/000/006/012/014
E194/E435

AUTHORS: Pomerantsev, V.V., Shagalova, S.L., Aref'yev, K.M.

TITLE: Analysis and calculation of the combustion of a pulverized fuel flame

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, 1961, No.6, p.10, abstract 6G62. (Sb. 3-e Vses. soveshchaniye po teorii goreniya. T.2., M., 1960, pp.158-160)

TEXT: Existing procedures for calculating the combustion of coal dust have not been used in engineering practice.   New efforts in this direction have been undertaken in the TsKTI (Central Boiler and Turbine Institute).   The procedure is based on solving the problem of combustion of a pulverized fuel flame which is of uniform particle size distribution across the section.   The solution allows for the combined influence on the process of kinetic and diffusion factors and also allows for varying concentration and approximately for the temperature distribution in the flame.   The main assumptions are: (1) the speed and temperature of the fuel particles are assumed to be the same as those of the gas flow in which they are carried;   (2) when the fuel is milled the ash is

Card 1/2

S/080/60/033/04/32/045

AUTHORS: Leont'yev, A.K., Pomerantsev, V.V.

TITLE: On the Low-Temperature Oxidation of Organic Materials

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 940 - 946

TEXT: The low-temperature oxidation of some organic materials, like coal, starch and sugar, was investigated in the laboratory of the department of thermal physics of the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnical Institute). The aim of the work was the determination of the activation energy of the oxidation process within the temperature range of 40 - 140°C. The low-temperature oxidation of organic material is connected with its adsorbability and the desorption of the products of the reactions with the oxygen adsorbed. The sorption and desorption processes were investigated on Pechora coal, Donets gas coal, starch and beet sugar. The experimental data are analyzed on the basis of Roginskiy's theory of the sorption on non-homogeneous surfaces. It was shown that the grinding of coal affects mainly the rate of the initial adsorption of oxygen. An increase in the drying temperature has the same effect. Together with the oxygen adsorption the desorption process takes place. The principal desorption product is CO_2. Nitrogen is sorbed by coal at 40, 60

Card 1/2

On the Low-Temperature Oxidation of Organic Materials   S/080/60/033/04/32/045

and 80°C, then starts its desorption. At a temperature above 100°C the desorption of
CO and CH_4 takes place. The activation energies of the sorption and desorption pro-
cesses were determined in dependence on the amount of oxygen adsorbed from the gaseous
phase. It was shown that the activation energy of desorption decreases with an increase
in the oxygen amount adsorbed.
There are: 9 graphs, 1 table and 1 Soviet reference.

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina (Leningrad
             Polytechnical Institute imeni M.I.Kalinin)

SUBMITTED: October 10, 1959

Card 2/2

POMERANTSEV, V.V.; RUNDYGIN, Yu.A.; SOKOVISHIN, Yu.A.

Approximate theory of the combustion and gasification of a
fuel layer. Inzh.-fiz.zhur. 4 no.8:11-19 Ag '61.   (MIRA 14:8)

1. Politekhnicheskiy institut imeni M.I.Kalinina, Leningrad.
                    (Combustion, Theory of)

KATSNEL'SON, Boris Davidovich;KORCHUNOV, Yuriy Nikolayevich; LIVEROVSKIY,
        Aleksey Alekseyevich; POMERANTSEV, Viktor Vladimirovich, doktor
        tekhn.nauk,prof.; SYRKINA, Kseniya Dmitriyevna; TISHCHENKO,
        Dmitriy Vyacheslavovich,; TSINSKA, Elio Markovich; SHMULEVSKAYA,
        Esfir' Ionovna; POMERANTSEV, V.V., red.; ZHITNIKOVA, O.S., tekhn.
        red.

[Layer methods of the use of fuel as a source of power and
chemicals]Sloevye metody energokhimicheskogo ispol'zovaniia
topliva. [By] B.D.Katsnel'son i dr. Moskva, Gosenergoizdat, 1962.
186 p.   (MIRA 15:9)
        (Fuel)   (Chemicals)

POMERANTSEV, V.V.; RUNDYGIN, Yu.A.

Mechanism of low-temperature oxidation of electrode carbon. Inzh.-
fiz. zhur. 5 no.2:3-9 F '62.   (MIRA 15:1)

1. Politekhnicheskiy institut imeni M.I.Kalinina, Leningrad.
(Electrodes, Carbon) (Gases, Absorption and adsorption)

POMERANTSEV, V.V.; LOMBAKH, V.A.; RUNDYGIN, Yu.A.

Determination of kinetic constants in the low-temperature
oxidation of electrode carbon. Inzh.-fiz.zhur. 5 no.3:3-9 Mr '62.
(MIRA 15:3)

1. Politekhnicheskiy institut imeni Kalinina, Leningrad.
(Oxidation)(Carbon)

POMERANTSEV, V.V.; YEKIMOV, G.K.

Approximate computation methods for the conveyance of nongrainy
materials along feed chutes. Inzh.-fiz.zhur. 5 no.12:59-64 D
'62.   (MIRA 16:2)

1. Politekhnicheskiy institut imeni M.I.Kalinina, Leningrad.
                   (Fuel—Transportation)

POMERATNSLV, V.V., doktor tekhn. nauk, prof.; MARGULIS, S.A., inzh.;
    YEKIMOV, G.K., inzh.; SOSENSKIY, A.I., inzh.

Operation of the V.V. Pomerantsev high-speed TsKTI furnace on
waste wood. Energomashinostroenie 11 no.5:7-10 My '65.

(MIRA 18:6)

PONOMAREV, A.A.: SMIRNOVA, Z.A.

Anatomicoelectrocardiographic parallels in chronic cor pul-
monale. Vrach. delo no.1:46-48 Ja'64   (MIRA 17:3)

1. Kafedra gospital'noy terapii (nachal'nik – deystvitel'nyy
chlen AMN SSSR, prof. N.S. Molchanov) Voyenno-meditsinskoy
akademii imeni S.M.Kirova i patologoanatomicheskoye otdeleniye
(zav. – Z.A. Smirnova) Leningradskoy oblastnoy klinicheskoy bol'-
nitsy.